

Remarks

Claims 1, 3, 5, 7, 10 and 11 have been rejected under 35 U.S.C. §102(b) as being anticipated by Vaudrey (US 6,650,755). Claims 2, 4, 6 and 8 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Vaudrey in view of Miles (US 5,610,986). Claims 9, 13 and 15 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Vaudrey in view of Klayman (US 5,970,152). Claims 12, 14 and 16 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Vaudrey in view of Miles and further in view of Klayman.

The above-mentioned rejections are respectfully traversed and submitted to be inapplicable to the claims for the following reasons.

Claim 1 is patentable over Vaudrey, since claim 1 recites a sound system for reproducing a plurality of channel signals including at least left and right front channels and a center channel for forward-placed speakers, the sound system having an attenuating means for attenuating either a left channel signal or a right channel signal according to an operation on an operating part, and a controlling means for controlling an attenuation of a center channel signal depending on the attenuation of the left channel signal or the right channel signal. Vaudrey fails to disclose or suggest the controlling means as recited in claim 1.

Vaudrey discloses a system that is capable of downmixing a number of audio channels of a program to a lower number of audio channels that corresponds to a user's reproduction apparatus. The system also allows for manual or automatic adjustment of the gain of a dialog (voice audio) signal of a program on a center channel with respect to other sound (remaining audio) signals of the program on other channels prior to downmixing the number of audio channels. During manual adjustment, the user of the system is capable of arbitrarily adjusting the gain of the voice audio signal on the center channel with respect to the other audio signals on the other channels by way of a number of level adjusters 276a-g. During automatic adjustment, the user sets a voice-to-remaining audio (VRA) ratio between the voice audio signal on the center channel and the remaining audio signals. The system then monitors the ratio of the gain of the voice audio signal with respect to the gain of the remaining audio signals and if the monitored ratio differs beyond a threshold associated with the VRA ratio, the system performs an increase of the gain of the voice signal, a decrease of the gain of the remaining audio signals, or a combination of both. After the gains of the voice and remaining audio signals are adjusted

with respect to each other, if necessary, the downmixing is performed. (See column 8, lines 3-16, column 9, line 42 – column 10, line 42; and Figure 8).

In the rejection of claim 1, the above-mentioned disclosure of the system performing the automatic gain adjustment using the VRA ratio of Vaudrey is relied upon as corresponding to the claimed controlling means. However, the purpose of the automatic adjustment is to ensure that the VRA ratio is maintained and is specifically described as operating to (1) only increase the gain of the voice signal, (2) only decrease the gain of the remaining audio signals, or (3) increase the gain of the voice signal and decrease the gain of the remaining audio signals concurrently. On the other hand, claim 1 recites that the controlling means controls the attenuation of the center channel signal depending on the attenuation of the left channel signal or the right channel signal. There is no disclosure or suggestion in Vaudrey that the automatic gain adjustment ever decreases the gain of the remaining audio signals and also decreases the gain of the voice signal based on the decrease of the remaining audio signals. In other words, there is no disclosure or suggestion in Vaudrey of controlling attenuation of a center channel signal based on attenuation of a left or right channel signal controlled according to an operation performed on an operating part as recited in claim 1. It is apparent that Vaudrey fails to disclose or suggest this feature of claim 1. As a result, claim 1 is patentable over Vaudrey.

Claim 3 is patentable over Vaudrey, since claim 3 recites a sound system including an attenuating means for attenuating either a left channel signal or a right channel signal according to an operation on an operating part, a first adding means for adding at least a portion of the attenuated left or right channel signal to a center channel signal, and a second adding means for adding at least a portion of the center channel signal to the right or left channel signal not being attenuated. Vaudrey fails to disclose or suggest these features of claim 3.

As discussed above, Vaudrey discloses the system that is capable of performing automatic or manual gain adjustment with respect to the voice audio signal and the remaining audio signals, and that is also capable of downmixing. Regarding the downmixing, the system is capable of mixing 5.1 channel audio down to 4, 3, 2 or 1 channel audio. In Figure 10, the system designed to downmix 5.1 channel audio to 2 channel audio is illustrated. In the system, the remaining audio signals are mixed in a block 91 and a left channel signal and a right channel signal are output from the block 91. Then, the voice audio signal is added to both the left channel signal and the right channel signal in a block 94 and the left channel signal and the right channel signal, each including the voice audio signal, are output to be

reproduced on a user's two channel reproduction apparatus. (See column 10, line 44 – column 11, line 30 and Figure 10).

In the above-discussed system for downmixing, it is apparent that the voice audio signal is combined with both the left channel signal and the right channel signal, and only the left channel signal and the right channel signal each having the voice audio signal added thereto are output. There is no center channel signal remaining having a portion of the attenuated left channel signal or the attenuated right channel signal added thereto. On the other hand, claim 3 recites that either a left channel signal or a right channel signal is attenuated according to an operation on an operation part, at least a portion of the attenuated left or right channel signal is added to the center channel signal, and at least a portion of the center channel signal is added to the right or left channel signal not being attenuated. Claim 3 clearly differs from the disclosure in Vaudrey because the system of Vaudrey downmixes 5.1 channels to 2 channels by eliminating the voice audio signal as its own channel, whereas claim 3 attenuates the left or right channel signal, adds at least a portion of the attenuated left or right channel signal to the center channel signal, and adds at least a portion of the center channel signal to the right or left channel signal not being attenuated. Vaudrey does not disclose or suggest attenuating either a left channel signal or a right channel signal according to an operation on an operating part, and adding a portion of the attenuated left channel signal or right channel signal to the voice audio signal. As a result, claim 3 is patentable over Vaudrey.

Claim 5 is patentable over Vaudrey, since claim 5 recites a sound system including an attenuating means for attenuating either front side channel signals or rear side channel signals according to an operation on an operating part, and an adding means for adding the attenuated side channel signals to the side channel signals not being attenuated. These features of claim 5 are not disclosed or suggested by Vaudrey.

As discussed above, the system of Vaudrey is capable of adjusting the gain of the voice audio signal with respect to the remaining audio signals and is also capable of downmixing a number of audio signals down to a left channel signal and a right channel signal. However, Vaudrey fails to disclose or suggest that the system attenuates either front side channel signals or rear side channel signals and adds the attenuated side channel signals to the side channel signals not being attenuated. Instead, Vaudrey is concerned with the downmixing of the number of channels and discloses that all of the remaining audio signals have their gains reduced concurrently. (See column 8, lines 3-6). Therefore, Vaudrey necessarily fails to disclose or suggest attenuating either the front side channel signals or the rear side channel signals

according to an operation on an operating part, and the addition of the side channel signals that have been attenuated with the side channel signals that have not been attenuated as recited in claim 5. As a result, claim 5 is patentable over Vaudrey.

Claim 7 recites a sound system including an attenuating means for attenuating either left side channel signals or right side channel signals according to an operation on an operating part, and an adding means for adding at least a portion of the attenuated side channel signals to the side channel signals not being attenuated. Vaudrey fails to disclose or suggest these features of claim 7.

As discussed above with regard to claim 5, the system of Vaudrey is capable of adjusting the gain of the voice audio signal with respect to the remaining audio signals and is also capable of downmixing a number of audio signals down to a left channel signal and a right channel signal. However, Vaudrey fails to disclose or suggest that the system is capable of attenuating either left side channel signals or right side channel signals according to an operation on an operating part, and adding at least a portion of the attenuated side channel signals to the side channel signals not being attenuated. Instead, Vaudrey is concerned with the downmixing of the number of channels and discloses that all of the remaining audio signals have their gain reduced concurrently. (See column 8, lines 3-6). Therefore, Vaudrey necessarily fails to disclose or suggest attenuating either left side channel signals or right side channel signals and the addition of at least a portion of the attenuated side channel signals with the side channel signals that have not been attenuated as recited in claim 7. As a result, claim 7 is patentable over Vaudrey.

As for Miles and Klayman, these references are relied upon as disclosing a matrix factor of 0.45 to 0.7 and time delay device, respectively. However, it is apparent that neither of these references discloses or suggests the above-discussed features of claims 1, 3, 5 and 7.

Because of the above-mentioned distinctions, it is believed clear that claims 1-16 are allowable over the references relied upon in the rejections. Furthermore, it is submitted that the distinctions are such that a person having ordinary skill in the art at the time of invention would not have been motivated to make any combination of the references of record in such a manner as to result in, or otherwise render obvious, the present invention as recited in claims 1-16. Therefore, it is submitted that claims 1-16 are clearly allowable over the prior art of record.

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance. The Examiner is invited to contact the undersigned by telephone if it is felt that there are issues remaining which must be resolved before allowance of the application.

Respectfully submitted,

Akira MOTOJIMA et al.

By:



Nils E. Pedersen

Registration No. 33,145

Attorney for Applicants

NEP/jmj
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
November 1, 2005